**Test Results**

Because we determined that our XGBoost model has the best performance, we used the test dataset and had our model make predictions. Despite its results being the best out of the three, it still had underwhelming results.

The RMSE of the model was 49.546824. The MSE was 2454.887798. The MAE was 37.391982. Although we expected the model to struggle due to it having overfitting issues, we did not expect the results to be this underachieving.

Text

Description automatically generated

We also analyzed the coefficients of the model once more. Although the mobility features are shown to be more important than zipcode influx when looking for the number of hospitalizations, the feature importance scores of most of these features feel arbitrary due to the lack of pattern in the visualization of the coefficient values. This, combined with the poor test results, show that this model is flawed.

XGBoost-based models have been proven to be highly efficient when making predictions based off large-scale datasets such as the hospitalization dataset. Because of this, we decided to improve this model rather than change it to a different ML algorithm.